

LISTING OF THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (withdrawn) Equipment for a communication system disposed in the communication system and having an active element formed by using a compound semiconductor, the active element comprising:
 - a compound semiconductor layer provided on a substrate; and
 - an active region provided on the compound semiconductor layer and composed of at least one first semiconductor layer functioning as a carrier flow region and at least one second semiconductor layer containing an impurity for carriers at a high concentration and smaller in film thickness than the first semiconductor layer such that the carriers are distributed therein under a quantum effect, the first and second semiconductor layers being disposed in contact with each other.

2. (withdrawn) The equipment for a communication system of claim 1, wherein the first semiconductor layer includes a plurality of first semiconductor layers and the second semiconductor layer includes a plurality of second semiconductor layers, the first semiconductor layers and the second semiconductor layers being arranged in stacked relation.

3. (withdrawn) The equipment for a communication system of claim 1, wherein the active element is a MESFET formed by disposing the first semiconductor layer immediately below a gate electrode.

4. (withdrawn) The equipment for a communication system of claim 1, wherein the active element is a Schottky diode formed by disposing the first semiconductor layer immediately below a Schottky electrode.

5. (withdrawn) The equipment for a communication system of claim 4, wherein the active element is the Schottky diode in a lateral configuration.

6. (withdrawn) The equipment for a communication system of claim 1, wherein the active element is a MISFET comprising:
a gate insulating film provided on the first semiconductor layer;
a gate electrode provided on the gate insulating film; and
source/drain regions provided on both sides of the gate electrode in the compound semiconductor layer.

7. (withdrawn) The equipment for a communication system of Claim 1 further comprises a capacitor and an inductor provided on the compound semiconductor layer.

8. (withdrawn) The equipment for a communication system of Claim 1, wherein the compound semiconductor layer is a SiC layer.

9. (withdrawn) The equipment for a communication system of Claim 1, which is a base station in the communication system.

10. (withdrawn) The equipment for a communication system of Claim 1, which is a mobile station in the communication system.

11. (withdrawn) The equipment for a communication system of Claim 1, wherein the communication system is any one of a mobile phone, a PHS, a car phone, and a PDA.

12. (withdrawn) The equipment for a communication system of Claim 1, wherein the active element is disposed in a transmitter in the communication system.

13. - 20. (cancelled)

21. (previously presented) A semiconductor integrated circuit device comprising:
a compound semiconductor layer composed of compound semiconductor; and
a MISFET provided on the compound semiconductor layer,
wherein the MISFET comprises:
an active region provided on the compound semiconductor layer,
a gate insulating film formed on the active region,
a gate electrode formed on the gate insulating film, and

source/drain regions formed on both sides of the gate electrode in the active region,

wherein a part interposed between the source/drain regions in the active region is composed by alternately stacking a plurality of first semiconductor layers and a plurality of second semiconductor layers, which contain an impurity for carriers at a high concentration and which film thickness are smaller than the film thickness of the plurality of first semiconductor layers,

wherein the plurality of first semiconductor layers and the plurality of second semiconductor layers are made of the same material, and

wherein each of the plurality of first semiconductor layers has equal thickness, and each of the plurality of second semiconductor layers has equal thickness.

22. (previously presented) The semiconductor integrated circuit device of claim 21, further having a capacitor and an inductor provided on the compound semiconductor layer.

23. (previously presented) The semiconductor integrated circuit device of claim 21, wherein the compound semiconductor layer is a SiC layer.

24. (previously presented) The semiconductor integrated circuit device of claim 21, wherein the compound semiconductor layer is a GaAs layer or a GaN layer.

25. (previously presented) The semiconductor integrated circuit device of claim 21, wherein the plurality of first semiconductor layers function as a carrier flow

region, and the carriers in the plurality of second semiconductor layers are distributed into the plurality of first semiconductor layers under a quantum effect.

26. (previously presented) The semiconductor integrated circuit device of claim 21, further comprises a second active region provided on the active region, and a second MISFET provided on the second active region,

wherein the second MISFET includes:

a second gate insulating film formed on the second active region,

a second gate electrode formed on the second gate insulating film, and

second source/drain regions formed on both sides of the second gate electrode in the second active region,

wherein a part interposed between the second source/drain regions in the second active region is composed by alternately stacking a plurality of third semiconductor layers and a plurality of fourth semiconductor layers, which contain an impurity for carriers at a high concentration and which film thickness are smaller than the film thickness of the plurality of third semiconductor layers,

wherein the plurality of third semiconductor layers and the plurality of fourth semiconductor layers are made of the same material, and

wherein each of the plurality of third semiconductor layers has equal thickness, and each of the plurality of fourth semiconductor layers has equal thickness.

27. (previously presented) The semiconductor integrated circuit device of claim 26, wherein the MISFET is a p-type MISFET and the second MISFET is an n-type MISFET.